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ABSTRACT

This paper reports the outcomes of a study that utilized descriptive, qualitative methods and a series of case studies to investigate how students are diagnosed with pervasive developmental disorders, specifically Asperger syndrome under the Individuals with Disabilities Education Act. The study focuses on students attending elementary schools in the counties of southern New Jersey. A sample of 12 students ranging in age from 8-13, was drawn from 9 public schools and 3 private elementary schools in the South Jersey area. A neurologist diagnosed all the students as having Asperger syndrome. Data collection relied upon semi-structured field interviews with special education teachers, regular education teachers, and other school personnel directly involved with educating the children with Asperger syndrome. Data was collected from researcher observations in the academic and unstructured classroom setting. Findings of the study indicate that a small teacher to student ratio was the most successful form of academic intervention, while the behavior modification system in conjunction with positive teacher attitudes was the most successful form of behavioral intervention. Successful forms of social skills intervention were sparse, which indicates a need for further exploration in that area. The report closes with teaching recommendations. An appendix includes the diagnostic criteria for Asperger syndrome. (Contains 36 references.) (CR)

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ASPERGER SYNDROME: A QUALITATIVE STUDY OF SUCCESSFUL EDUCATIONAL INTERVENTIONS

A Paper Presented at the Eastern Educational Research Conference

February 17, 2001

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ABSTRACT

In order to comply with the Individuals with Disabilities Act (IDEA) federal legislation enacted in 1990, schools are resorting to full inclusion as a means to provide a "free and appropriate education" in the "least restrictive environment." Children diagnosed with Pervasive Development Disorders, specifically Asperger's syndrome, are among those students who are eligible under the IDEA to be included in the regular classroom setting.

These often academically high-functioning but socially inept children are not prevalent in the public school setting, but the number of cases is rising. Educators are often unsure about what educational interventions are most effective for students diagnosed with Asperger's syndrome. The study utilized descriptive qualitative methods and a series of case studies to examine the following research question: Under the 1997 IDEA federal regulations, how are students diagnosed with PDD (Pervasive Development Disorders), specifically Asperger's syndrome, educated in elementary schools in the counties of southern New Jersey? This dissertation specifically addressed successful educational practices for achieving the following goals:

- To determine how characteristics of Asperger's disorder affects students' academic performance and behavior within the school.
- To determine successful teaching interventions to capitalize upon the strengths of children diagnosed with Asperger's syndrome.
- To determine successful social skills intervention strategies or programs.
- To determine successful behavior management interventions within the school setting.

A convenience sample of 12 students, 10 boys and 2 girls, ranging in age from 8 – 13, was drawn from nine public schools and three private elementary schools in the South Jersey area. According to the respective school personnel, the 12 students were all diagnosed by a neurologist and were labeled specifically with Asperger's syndrome.

Data collection relied upon semi-structured field interviews with special education teachers, regular education teachers, and other school personnel directly involved with educating the child with Asperger's syndrome as well as researcher observations in the academic and unstructured classroom setting. The emergent data were coded by the researcher using the following categories and sub-categories: 1) Characteristics of Asperger's syndrome – academic, social and behavioral 2) Educational Interventions – academic, behavior modification, social skills, placement and special services 3) Background of the Child 4) Teacher Attitudes 5) Teacher Training. All of the coded data were organized into a contact summary sheet. Utilizing the constant comparison method, themes were extracted to provide the results.

The study is unique because similar qualitative research (Barber, 1996; Carruthers, 1987; Edwards, 1999; Wisnoski, 1999;Zorn, 1998) focuses on a single case study while this study examines twelve different children diagnosed with the same disability. Findings of this study indicated that a small teacher to student ratio was the most successful academic intervention while the behavior modification system in conjunction with positive teacher attitudes was the most successful behavioral intervention. Successful social skill interventions were sparse, which indicates a need for further exploration in that area.

INTRODUCTION & NEED FOR THE STUDY

Introduction to the Problem

"One of the crucial problems confronting society is how to provide an education for all children" (Bauer, 1994, p. 1). "Children diagnosed with Asperger syndrome present a special challenge in the educational milieu" (Williams, 1995, p. 9). Asperger syndrome is classified in the Diagnostic and Statistical Manual of Mental Disorders (1994) under the heading Pervasive Development Disorders (PDD). The PDD umbrella is divided into five parts: Autistic Disorder, Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder, and Pervasive Developmental Disorder Not Otherwise Specified.

Their peers view most Asperger students as eccentric and peculiar, and their inept social skills often cause them to be victims of ridicule. These often-clumsy children also may possess an obsessive interest in obscure subjects that only further alienates them from their peers. Although their pursuit of certain interests may lead to success in later years, it is not helpful with peer relationships. Their inability to cope with change may also cause these students to be easily stressed and emotionally vulnerable (Williams, 1995).

> Naturally, not all children with Asperger's are alike. Just as each child with Asperger's syndrome has his or her own unique personality, "typical," Asperger symptoms are manifested in ways specific to each individual. As a result, there is no exact recipe for classroom approaches that can be provided for every youngster with Asperger's syndrome, just as no one educational method fits the needs of all children not afflicted with AS (Williams, 1995, p. 9).

Until recently, students diagnosed with PDD were excluded from public schools (Renew, 1998). In 1975, prior to legislation that would impact their access to the public schools, roughly 775,000 children with disabilities were denied entry into the public schools (Cooley, 1995). "Most of these children were either institutionalized for custodial care or remained at home. Of those in public schools, many were found to be receiving educational services inappropriate to their needs and thus found to be functionally excluded" (Cooley, 1995, p. 3). Only since the 1960s have students with PDD/Autism been viewed as teachable (Renew, 1998). Lovaas (1963) demonstrated that severely autistic children could learn to read by utilizing highly structured versions of the same methods used to teach typical children. Kozoloff (1971) demonstrated that autistic students could succeed in regular classrooms if teachers, curricula, and other components of the learning environment were structured in precise ways.

As research continued to unfold, parents and advocates for students with disabilities began to use the courts in an attempt to force states to provide an equal educational opportunity for these children. These efforts were successful and eventually led to the passage of federal legislation to ensure a free and appropriate education for students with disabilities (Yell, Rogers, & Rogers, 1998). Today, children with disabilities are no longer excluded from public schools; approximately five million students or about ten percent of the total school-aged population are presently receiving special education services (Cooley, 1995).

"The rights of individuals with disabilities were significantly strengthened with the passage of three federal laws and their periodic amendments" (Horne, 1996, p.6). The three laws were the following: Section 504 of the Rehabilitation Act of 1973, the

Education of All Handicapped Children Act (EAHACA) of 1975, and the Individuals with Disabilities Education Act (IDEA) of 1990. The most recent passage of the IDEA has had the most direct impact upon children with Asperger's syndrome and their placement within the school setting.

The IDEA makes it possible for the state to receive federal funds to assist in the education of infants, toddlers, preschoolers, and children with disabilities. In order to remain eligible for federal funds, states must ensure the following:

- All children and youth with disabilities, regardless of the severity of their disability, will receive a Free Appropriate Public Education (FAPE) at public expense.
- An Individualized Education Program (IEP) will be drawn up for every child or youth found eligible for special education or early intervention services, stating precisely what kinds of special education and related services, the child needs.
- To the maximum extent appropriate, all children and youth with disabilities will be educated in the least restrictive environment.
- Children receiving special education have the right to receive the related services necessary to benefit from special education instruction.
- Parents have the right to participate in every decision related to the identification, evaluation, and placement of their child with a disability.
- Parents must give consent from any initial evaluation, assessment, or placement. They must be notified of any change in placement, and must be included in any conferences and meetings held to compose individualized programs.

- Parents have the right to challenge and appeal any decision related to the identification, evaluation, and placement, or any issue concerning the provision of FAPE, of the child.
- Parents have the right to confidentiality of information (Horne, 1996, p. 7).

The following categories are those which the IDEA considers eligible for services: autism, deaf blindness, hearing impairments including deafness, mental retardation, other health impairments, orthopedic impairments, serious emotional disturbance, specific learning disabilities, speech or language impairments, traumatic brain injury, visual impairments including blindness, or multiple disabilities (Tsai, 1998). Since Asperger's syndrome is currently classified as a Pervasive Development Disorder along with autism, children with Asperger's syndrome are now protected under the IDEA and must receive the appropriate services for the disability.

Need for the Study

Before the 1980s, autistic children were typically labeled "developmentally delayed" or "mentally retarded." During the mid-1980s, educators were beginning to create special education programs for autistic students. In the United States, there have been large increases in the number of identified autistic students. As the numbers rise, researchers are looking for answers, and educators are seeking guidance for teaching these children (Sack, 1999).

The U.S. Department of Education statistics show nearly 120 percent increase in the number of students ages 6 – 21 identified as autistic over a four-year period. During the same time period, the overall number of students with disabilities only rose 13 percent. In the 1992-1993 school year, approximately 15, 580 students were identified as

autistic compared to the 34, 101 students identified in the 1996 – 97 school year. Although the number only represents a small percentage of the 5.2 million children with disabilities nationwide, it still appears to be rising significantly (Sack, 1999).

> Nationally, the demand for state services rose by 556 percent during the 1990s. Some experts see a growing epidemic in these numbers, while others believe they reflect new awareness of an existing problem. Either way, autism is now thought to affect one person in 500, making it more common than Down syndrome or childhood cancer (Cowley, 2000, p. 48).

While the incidence remains "small," that makes educating autism students complex, said Louis Danielson, the director of the Education Department division that oversees autism research. According to him, autistic students often pose a challenge, particularly for small school districts (Sack, 1999). " 'This is not a rare disorder,' says Dr. Marie Bristol Power of the National Institute of Child Health and Human Development (NICHD). 'It's a pressing public-health problem' "(Cowley, 2000).

For educators, the low prevalence of higher functioning autistic students poses a challenge (Muskat & Redefer, 1996). "Figuring out how to educate the diverse range of students with autism has proved to be a challenge for many schools, and parents are not always pleased with the results" (Sack, 1999, p. 15). Sometimes, it has become a legal battle where the administrators and parents have fought over the kind and amount of services granted by the IDEA. As unprecedented educational contentions and changes sweep the country (Shapiro, Loeb, Bowermaster, & Toch, 1993) professionals and parents concerned with students with autism are striving to maintain their programs' unique identity and build high-quality, effective intervention programs (Simpson, 1995).

Due to the "least restrictive" provision under the IDEA and the increasing number of autistic students entering the full inclusion setting, administrators and teachers are unsure about which educational treatment programs are most effective for children diagnosed with Asperger's syndrome. "Unfortunately, there are no empiric data on effective treatment strategies for children with Asperger's syndrome" (Szatmari, 1991, p. 88).

REVIEW OF THE LITERATURE

In the psychiatric literature published prior to 1944, there are descriptions and discussions of personality traits that are similar to those found in Asperger syndrome. According to Wing (1998), Kretschmer (1925) described case histories of people with "schizothymic" personality disorders, and one or two cases resembled Asperger's. Accounts were written of individuals who pursued their own interests without regard to the needs of other people. That may suggest similarities to what was later described as Asperger's syndrome. Schneider (1923) labeled these subjects as "affectionless psychopaths" (Wing, 1998).

The problem with the early writings on these personality disorders is that the descriptions were given in general terms, and most were concerned solely with adults. It seems possible that the general labels used in these descriptions included some people with Asperger's, but also encompassed a wider range of clinical pictures. Sula Wolff (1995) refers to one paper written in the 1920s that described a group of boys with a pattern of behavior she called schizoid personality of childhood. This description also contains similarities to Asperger's syndrome (Gillberg, 1998; Wing, 1998).

The 1940s were a period of controversy surrounding emotionally disturbed children. On one hand, "we are beginning to consider it clinically fruitless, and even unnecessary, to draw any sharp dividing lines between a condition that one could consider psychoneurotic and another that one could call psychosis, autism, atypical development, or schizophrenia"(Szurek, 1956, p.522). On the other hand, others preferred to make the distinction between observed characteristics of emotionally disturbed children (Asperger, 1944/1991; Kanner, 1943).

In order to study each of these varieties with true precision, Leo Kanner, a Baltimore psychiatrist, believed that the time had come to acknowledge the heterogeneity of the many conditions comprised under the generic term, "emotionally disturbed children" (Kanner, 1962). As a result, he outlined a condition labeled early infantile autism in 1943 that contained the most striking coincidence to Asperger's syndrome. Both Kanner and Asperger, independently of each other, used the words autism and autistic to capture the lack of social instinct in the children they described (Wing, 1998). Kanner described eleven children with autistic disturbances and noted that his patients exhibited by a profound lack of social interaction almost from birth. He also noted that his cases had poor communication and unusual responses to their surroundings. Three of the eleven children could not speak, and the language of those who did speak was remarkable for echolalia, literalness and pronoun reversal (Volkmar & Lord, 1998).

In 1944, Hans Asperger, an Austrian pediatrician, wrote his first paper (on what has come to be known as his syndrome) in a German journal of psychiatry and neurology. He was unaware of Kanner's earlier report on autism when he described a concept of "autistic psychopathy." He chose the label "autistic psychopathy" using the latter word

meaning an abnormality of personality (Wing, 1998); however, because the term psychopath has come to be equivalent to sociopathic behavior, Wing (1981) coined the described behavior as Asperger's syndrome. Asperger described the marked problems in social interaction similar to Kanner's report in 1943. There are many similarities between Asperger's and Kanner's views of autism. "On all the major features of autism Kanner and Asperger are in agreement" (Frith, 1991, p. 10). Even Asperger was struck by the similarity of his own and Kanner's cases, even though he later stated the he was referring to a "basically different type." Despite the similarities between Asperger's syndrome (AS) and Kanner's infantile autism, it is generally agreed that Asperger's syndrome's disturbances of cognition and affect are milder than, but not entirely different from those shown by autistic children (Wing, 1981).

Asperger described many aspects of the behavior of children believed to have the syndrome but did not give a list of diagnostic criteria. The following points summarize his conclusions:

1. The children were socially odd, naïve, inappropriate, emotionally detached from others.
2. They were markedly egocentric and highly sensitive to any perceived criticism, while being oblivious of other people's feelings.
3. They had good grammar and extensive vocabularies. Their speech was fluent but long-winded, literal and pedantic, used for monologues and not for reciprocal conversations.
4. They had poor nonverbal communication and monotonous or peculiar vocal intonation.

5. They had circumscribed interests in specific subjects, including collecting objects or facts connected with these interests.
6. Although most of the affected children had intelligence in the borderline, normal, or superior range on tests, they had difficulty in learning conventional schoolwork. However, they were capable of producing remarkable original ideas and had skills connected with their special interests.
7. Motor coordination and organization of movement was generally poor, although some could perform well in areas of special interest to them, such as playing a musical instrument.
8. The children conspicuously lacked common sense (Wing, 1998, p. 12 – 13).

Asperger also mentioned stereotyped play, strange responses to sensory stimuli, fascination with spinning objects, stereotyped body movements, aggression, destructiveness, and restlessness. Asperger noted that he discovered the condition almost exclusively in boys and did not find the fully formed picture within girls (Asperger, 1944/1991).

He summarized the children's difficulties in his hypothesis that they failed to assimilate the automatic routines of everyday life but followed their own interests regardless of environmental constraints. He emphasized that traits were lifelong, though most were able to find success by pursuing their areas of interest. Finally, he commented that the parents had not usually noticed any abnormality in the children's behavior before the age of three years (Asperger, 1944/1991).

Both Kanner and Asperger wrote their first papers during World War II, however, Kanner published in English in an American journal while Asperger wrote in German, in

a German language journal. Therefore, Kanner was well known in America while little was heard of Asperger. According to Gillberg (1998), only four papers referring to "autistic psychopathy" have been published in the United States from Asperger's original writings in 1944 until the 1980s.

The year 1981 proved to be a turning point for Asperger's syndrome as Lorna Wing (1981) published her influential critique of Asperger's writings by confirming the condition described by Asperger but noted that some aspects of the original description warranted modification. Her writing provided examples of the syndrome, which could be seen fully in girls (Volkmar, et al., 1996). Wing (1981) also carefully observed the speech of those children with Asperger's and found that although they appeared to have good use of grammar and a large vocabulary, much of it is copied inappropriately from other people or books as if learned by rote. Asperger described children as capable of creativity in their chosen interest; however, Wing (1981) found their thought processes to be narrow, pedantic, and literal, but logical. She also questioned the high intelligence of the Asperger children because Asperger did not support his claim with standardized intellectual tests.

After years of speculating the precise definition of Asperger's syndrome since Hans Asperger did not offer specific diagnostic criteria, the DSM-IV offers a definition.

> The essential features of Asperger's Disorder are severe and sustained impairment in social interaction and the development of restricted, repetitive patterns of behavior, interests, and activities. The disturbance must cause clinically significant impairment in or other important areas of functioning. In contrast to Autistic Disorder, there are no clinically significant delays in language. In

addition, there are no clinically significant delays in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood. The diagnosis is not given if the criteria are met for any other specific PDD or for Schizophrenia (APA, 1994, p. 75).

Associated with general medical condition it should be noted that nonspecific neurological symptoms or signs might be observed, motor milestones may be delayed, and motor clumsiness is often present. Information on prevalence of Asperger's is limited, but it appears to be more common in males than females. According to Ehlers and Gillberg (1993), the prevalence of Asperger's syndrome is at least 3.6 and possibly 7.1 in 1000 children aged 7 – 16 years old.

Regarding the course of Asperger's syndrome, it appears to have later onset than autism. Motor delays or clumsiness may be observed in preschool period. Difficulties in social interaction may become more apparent within school settings. Particular idiosyncratic or circumscribed interests may be recognized. Duration is usually life long. Although data are limited, there appears to be an increased frequency of Asperger's syndrome among family members of individuals who have the disorder.

Asperger's is distinguished from only two other diagnoses: Obsessive Compulsive Disorder and Schizoid Personality Disorder (APA, 1994). As opposed to Obsessive Compulsive Disorder, Asperger's is characterized by a qualitative impairment in social interaction and a more restricted pattern of interests and activities (APA, 1994). As opposed to Schizoid Personality Disorder, Asperger's Disorder is characterized by

stereotyped behaviors and interests and by more severely impaired social interaction (APA, 1994). For the specific diagnostic criteria, see *Appendix A*.

METHODOLOGY

Research Design

The study utilized descriptive qualitative methods and a series of case studies to examine the following research question: Under the 1997 IDEA federal regulations, how are students diagnosed with PDD (Pervasive Development Disorders), specifically Asperger's syndrome, educated in selected elementary schools in Southern New Jersey? This dissertation specifically addressed successful educational practices for achieving the following goals:

- To determine how characteristics of Asperger's disorder affects students' academic performance and behavior within the school.
- To determine successful teaching interventions to capitalize upon the strengths of children diagnosed with Asperger's syndrome.
- To determine successful social skills intervention strategies or programs.
- To determine successful behavior management interventions within the school setting.

Data collection relied upon key informant interviews with special education teachers, regular education teachers, and other school personnel directly involved with educating the child with Asperger's syndrome as well as researcher observations. The data were analyzed using axial coding and were recorded on a contact summary sheet.

Population and Sample

A convenience sample of 12 students, 10 boys and 2 girls, ranging in age from 8 – 13, was drawn from six public schools and two private elementary schools in the South Jersey area. According to the respective school personnel, the 12 students were all diagnosed by neurologists and were labeled specifically with Asperger's syndrome.

Procedure

Development of the Interview Instrument

The interview instrument was designed based upon the four main goals of the study. The questionnaire contained four parts; each part was developed to seek answers to the respective goals. Questions to elicit answers to the first goal were developed, and questions to elicit answers for the remaining three items were then developed. In order to protect the validity of the study and standardize the responses, prompts, suggested by a focus group, were provided for each question.

Conducting the Interview

Adults within the school setting who had an ongoing responsibility for the child's learning were interviewed. This included the following: special education teachers, regular education teachers, speech therapists, principals, and paraprofessional aides. The interview took the form as a standardized open-ended interview in which a predetermined sequence and wording of the same set of questions was asked of each respondent in order to minimize the possibility of bias. The semistructured interview asked the standard question then offered prompts to solicit more specific information as it was needed (Gall, Borg, & Borg, 1996).

Each interview began by explaining the origin of the study and the nature of the participants' role in the study. The researcher then asked the predetermined questions, including the prompts when the answers given were off-topic or inadequate. In some instances, the respondent was asked to clarify his/her response. Answers were recorded on the teacher questionnaire form. Sessions were also tape recorded to insure accurate notetaking. The tapes were transcribed verbatim by one person independent of the researcher.

In order to check the validity of the interviews, the method of triangulation was used to help eliminate biases that might result from relying exclusively on any one data-collection method, source, analyst, or theory (Gall, Borg, & Gall, 1996).

Observations

Data were also collected in the form of one classroom observation of each teacher interviewed. The researcher took the observer-participant role and sought answers to the four goals relative to the study and the interview instrument. The observer looked solely for the academic and behavioral performance of the student with Asperger's syndrome, teaching interventions, social skill interventions, and behavior management interventions. The researcher conducted one half-hour observation of structured academic time and one half-hour observation of unstructured time for each of the twelve participants in the study. During these observations, notes were handwritten by the researcher in a form that contained the following categories: time, notes on classroom environment, academic teaching interventions, social skills and behavior management, and reflections. Notes also included dialogue pertinent to the categories and a sketch of the classroom.

Data Analysis

The emergent data were recorded on a predesigned contact summary sheet that recorded the constructs and themes from each interview. Interpretational analysis was used to collate the summaries of the interviews and observations to identify constructs, themes, and patterns the teachers used to describe successful educational interventions for students with Asperger's syndrome. The researcher utilized the principles of grounded theory to define the categories and subcategories necessary for coding the segments of data (Strauss & Corbin, 1990).

The process of constant comparison (Glaser & Strauss, 1967) was used to compare segments within and across categories. Once the data were coded according to each category, the information from the interviews and observations were placed onto a final summary chart, one per each case study. Similar themes taken from the interviews and observations were aligned. Next, a cross summary chart collating data for all twelve case studies was completed.

DISCUSSION, RECOMMENDATIONS, & CONCLUSION

The primary purpose of this qualitative study was to identify characteristics of Asperger's syndrome that affect school performance and to propose successful educational interventions. Before analyzing the results of the study, it is important to note that the 12 cases presented are by no means "critical cases" (Yin, 1989) nor are they intended to be representative. These data were derived solely from the opinions of those educational personnel interviewed, mainly the classroom teachers, and from personal observations of the children within the classroom setting. Prior to beginning the study on Asperger's syndrome, the researcher had been employed as an assistant principal in an

elementary school where two children (both included in this study) enrolled were diagnosed with Asperger's syndrome. Having no special education background, it was difficult to make suggestions for the placement, learning, and discipline of these children; therefore, the researcher assumed the task of educating herself as well as other education professionals.

In order to protect the validity of the study, the dissertation included segments of the interview transcripts.

Academic, Social, and Behavioral Characteristics

The first goal of the study was to determine how characteristics of Asperger's syndrome affect students' academic performance and behavior within schools. Of the eight academic characteristics identified by the teachers, only four were present in 50% or more of the sample. Seven of the children were described as high functioning or intelligent, while 50% had difficulty in mathematics and abstract reasoning tasks.

Half of the children exhibited a literal understanding of words and had difficulty with reading comprehension. One teacher gave a good description of this characteristic as she stated, "He does think very literally and he does remember what you tell him. So you really have to be very careful what direction you give because he will follow it word for word." Six out of the twelve children were described as sharing that same trait.

Finally, 83% of the students displayed poor motor skills. Most of these children had difficulty with their handwriting and did not like to write. One teacher gave an accurate description of this difficulty as she stated, "If you let him dictate, he's got great sentences but make him write, and it's the bare minimum to answer the question."

Two behaviors that significantly affected academic performance were outstanding. Sixty-seven percent of the children displayed obsessive interests or eccentric preoccupations causing the children to lack a focus for learning. Sixty-seven percent of the students exhibited a low frustration tolerance and would stop working when the task was perceived as overwhelming.

Some of the significant social and behavioral characteristics may be linked to the low tolerance level. Half of the children exhibited impulsive behavior and frequently yelled out in class while sixty-seven percent of the students were fidgety and exhibited self-stimulating behaviors. Although repetitive motor mannerisms are listed as criteria for Asperger's syndrome in the Diagnostic and Statistical Manual for Mental Disorders (APA, 1994), low frustration tolerance is not. Many of the teachers indicated an increase in the self-abusive behavior during the subject area that was most challenging for the child with Asperger's syndrome. Further studies should be initiated to explore the relationship between these two characteristics.

An overwhelming three-quarters of the sample did not voluntarily interact with their peers and exhibited poor social skills, a symptom most clearly defining Asperger's syndrome. Also, seven of the students did not frequently make eye contact. Poor social skills manifested differently for each child.

Half of the students were described as having poor self-esteem. Half of the sample was described as being overly sensitive to extremes such as noises, crowds, and sunlight. Again, future studies should explore the possible correlation between lack of social skills and poor self-esteem and extreme sensitivity of students with Asperger's syndrome.

The characteristics described for Asperger's syndrome were expected as well as the varying degrees of intensity of each characteristic for each child. As stated in the first chapter of this dissertation, "typical Asperger symptoms are manifested in ways specific to each individual" (Williams, 1995, p.9). "Intervention programs should never be based solely on a given diagnosis; rather programs should be highly individualized to address a specific child's needs while capitalizing on the child's assets" (Klin & Volkmar, 2000, p.340).

The remaining discussion and recommendations are to be viewed as suggestions to be considered when implementing a program for a given person, not the exclusive prescription.

Academic Interventions

For each intervention, academic, social, and behavioral, the person interviewed was asked to identify "successful" strategies.

Nine out of the twelve children were said to perform better in a small setting with more individualized attention. The three cases that did not mention small teacher to student ratio as a successful intervention were those of children in the regular classroom setting without the opportunity of the small group setting.

Slightly less than half of the sample also responded positively to teacher proximity during instruction and this was clearly effective during the classroom observations. This idea is linked to the smaller group size because the teacher has the opportunity to be in close proximity with the student during the entire class period.

Aside from a small classroom setting, the next most effective academic intervention was the behavioral modification system, which is discussed further in the

next section. Additional strategies, similar to those mentioned in the review of the literature, that were considered effective and were observed as successful, were only successful with a small percentage, 33% or lower, of the children in the sample. They are as follows: a consistent classroom routine, including obsessive fixations into academic activities, using visual clues, hands-on activities, verbal praise, a visual copy of a daily schedule or tasks, warning of a change in the daily or weekly schedule There may be several reasons for this occurrence. The interviewees may have forgotten to mention the strategy, they may never have used the strategy, or the strategy was unsuccessful.

There are two strategies that need further exploration. Half of the children benefited from constant parent contact as a source of academic improvement and those same six students had parents who had researched Asperger's syndrome, had provided the teachers with literature about Asperger's, and had remained highly involved in their children's education. A future study may specifically research the relationship of the parents' involvement to academic improvement, and the amount of contact with the school. The other strategy is Touch Math that was utilized by only one teacher. Because the strategy is sequential and ritual in nature, it may be beneficial for students diagnosed with Asperger's syndrome to try this strategy if they exhibit the rule-oriented characteristic that is sometimes inherent to the disability.

Behavior Modification Interventions

There were various types of behavioral modification systems that were utilized by the classroom teachers and aides. All of the systems were linked to the academic component of learning as well as controlling unwanted behaviors; it is difficult to completely separate the learning from the behavior because they usually have a cause and

effect relationship. Although almost all of the subjects in the study were exposed to a behavior management system, only four of the teachers thoroughly described systems that were working very well and had actually diminished unwanted behaviors to produce the desired effect. Some of the behavior management systems were very similar to those mentioned by the four teachers, but did not seem to work as they were intended. The behavior modification systems that were explained in intricate detail had common themes. They all focused on the positive, and the students were given verbal encouragement as well more tangible rewards and were made to feel in control of the system while the latter system took away points and seemed to be a reaction to negative behavior rather than a productive system. The four successful behavior modification programs were all administered by special education teachers in the small group setting where the teacher-to-student ratio was low. When asked about their attitudes about educating a child with Asperger's syndrome, these special education teachers also had similar opinions.

Along with the small class size, the teachers with successful behavior modification systems also shared many beliefs. They focused on flexibility and an open-minded attitude from the teacher. Unless their behavior was severely disruptive, the teachers also agreed with mainstreaming of the Asperger's students in their areas of strength, but not on a full-time basis.

The next most successful behavior management intervention was the constant parent –teacher communication that was also mentioned as an academic intervention. Slightly less than half of the children benefited from this interaction. There were no other significant behavior management techniques. There were several simple techniques that

were mentioned to be successful, but only 17% or less of the sample were said to benefit from them.

Social Skills Interventions

In relation to other areas explored in the study, this section provided the least information. Although 13 themes were extracted from the interviews and observations, only small percentages of the children were said to benefit from the interventions possibly for several reasons. There could be a lack of social skills that are overtly taught in the schools. The teachers mostly seem to be relying upon typical techniques to teach children with Asperger's social skills such as the buddy system, teacher modeling of correct social behavior, encouraging to empathize with peers, and verbal encouraging to interact with peers in an unstructured setting. These general techniques are usually applied in most educational settings on a daily basis.

Other more original social skills interventions included daily social skills lessons, field trips, verbal or picture social storytelling, and role-play. The percentage of the children that were exposed to these interventions was small.

Another reason for the lack of information for social skill interventions could have been the absence of speech teacher interviews in this study. Although two speech lessons taught by speech pathologists were observed, only one was interviewed while three-quarters of the sample received speech therapy. Future studies should further explore the relationship of speech therapy as a successful social skills intervention for children diagnosed with Asperger's syndrome as well as the duration and frequency of the direct instruction.

Teacher Training

Although teacher attitudes had an effect on the behavior modification systems, teacher training did not seem to be a significant factor in the successful teaching interventions. More than half of the people interviewed did not have any experience with Asperger's syndrome nor did they have any training confirming the notion that interventions for individuals with Asperger's syndrome is still scant (Klin & Volkmar, 2000). It should be noted that the results of this study did not suggest that only trained teachers could successfully teach children with Asperger's. Two of the three teachers who previously worked in a private setting before arriving at their current position seemed to have more concrete, specific examples for successful interventions and were more confident in their responses to the interview. Yet, many of the other teachers were perfectly qualified to successfully educate a child with Asperger's despite their training or lack thereof if they were provided with the proper setting. More research needs to be conducted involving teacher training and teacher attitudes in conjunction with Asperger's syndrome.

Recommendations

When placing a child with Asperger's syndrome in a school setting, the educational administrators need to work closely with the child study team as their link to the medical professionals who diagnosed the child in addition to teachers who may have previously taught the student. Only after a thorough investigation of the child's characteristics should the placement of the student be considered. If the small setting is available and appropriate, it should be determined when and if the child will be mainstreamed. This research has found that it would be most beneficial to the child to

place him/her in subjects that are areas of strength for that individual. Teachers should be carefully selected by the administration; the teachers should be reputed as being positive, structured, and flexible. A child who is properly placed and comfortable in his/her learning environment will ultimately determine the success of the teacher.

The teachers do not necessarily have to be trained to teach children with Asperger's, but should be provided with literature pertinent to the syndrome. The most beneficial inservice for the teachers would be exposure to an already established program designed for children with Asperger's. Teachers should be provided the opportunity to visit other schools who have taught children with the syndrome and are confident about the success of the program. Inexperienced teachers should be able to observe the classroom as well as collaborate with the experienced teachers. Rather than listen to an orator, hands-on experience is much more effective because so many of these children do not exhibit all of the same traits so to generalize the characteristics would be detrimental to all parties involved.

Teachers should consider the use of a positive behavior management system that is consistent and used on a daily basis. The rewards should be tangible and based on the child's interests. The child should comprehend the system easily and should be reminded of the consequences of his/her behaviors before any action is taken.

The speech teachers who are mainly responsible for the social skills interventions need to adapt their program to meet the needs of the student with Asperger's syndrome. Most typical approaches to teaching social skills are not effective for children with Asperger's. Although it is questionable whether these skills are generalized to situations outside of the classroom, the more original approach to social skills did produce some

results within the school setting. The two most feasible strategies, especially for speech teachers in the small setting, were verbal or picture storytelling and role-play.

Conclusion

In a recently published qualitative study, "Portraits of Three Adolescent Students with Asperger's Syndrome: Personal Stories and How They Can Inform Practice," the authors believed that there were two critical areas of practice they felt needed to be addressed: "1) Consideration of school and classroom climate through building understanding and acceptance among peer and teachers of students who may be different. 2) Provision of increased social opportunities and social skills training"(Marks, Schrader, Longaker, & Levine, 2000). The findings of the study by Marks et al. reflect those findings of this study. According to the interviews, the placement of the child in the small group setting was the most effective educational intervention, and the teachers' attitudes about accepting the child with Asperger's into the classroom also affected the Asperger's child's success in school despite the teacher training. This study also found that the social skill training for Asperger's students is limited in school. It is also questionable whether social skills training actually changes the Asperger's child's behavior beyond the school walls.

It is important to note that this study is limited in size and limited in the geographic area, and the reality of available services in a given region often determine what might be the mix of specialized and inclusive experience that is provided (Klin & Volkmar, 2000). Although this study proposes the small group setting as a significant intervention, it is important to recall the previously mentioned idea that these children are

best provided with a continuum of services built around the child's individual needs (Harris & Handleman, 1997).

Because this study was a series of case studies relying only upon interviews and observations as a data source, it may lack the depth of descriptive detail often found in a single case study; therefore, this study should be used as a starting point for future research. In order to quantify this study and expand it to include a larger population size, it is suggested to utilize the themes found in this study and develop a questionnaire for educational professionals working with the Asperger's child. The goal is to provide educational professionals with a menu of educational interventions from which to choose the appropriate entrée(s) for each individual child.

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Appendix A

Diagnostic Criteria for Asperger's Disorder

A. Qualitative impairment in social interaction, as manifested by at least two of the following:

   1. Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction.
   2. Failure to develop peer relationships appropriate to developmental level
   3. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
   4. Lack of social or emotional reciprocity.

B. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

   1. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.
   2. Apparently inflexible adherence to specific, nonfunctional routines or rituals
   3. Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
   4. Persistent preoccupation with parts of objects.

C. The disturbance causes clinically significant impairment in or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g. single words used by age 2 years, communicative phrases used by age 3 years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.